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ABSTRACT

The article discusses training and competing in wheelchair sports. General principles of training, including scheduling and content considerations, are listed. Principles for specific wheelchair events (shotput, discus, and javelin) are detailed. A final part addresses training for the wheelchair pentathlon, which includes archery, swimming, javelin, shotput, and sprinting. (CL)

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PRINCIPLES AND PRACTICES FOR CHAMPIONSHIP PERFORMANCES IN WHEELCHAIR FIELD EVENTS

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Thanks and appreciation are extended to Bill Greene and members of the District of Columbia Smokers who incorporated many of these methods, techniques, and approaches into training programs during the 1977, 1978, and 1979 wheelchair track and field seasons. Adherence to these rigorous, systematic training approaches were felt to be important factors in personal improvement by each member of the Smokers. Special gratitude and congratulations go to John Bobo of the Smokers whose conscientious applications of these approaches were instrumental in his tremendous progress in the field events, and resulted in refinements and improvements in these techniques.

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Just as participation in wheelchair track events has shown dramatic growth in recent years, so has participation in wheelchair field events. Many trends discussed in Practical Pointer, Volume 2, Number 7--Principles and Practices for Championship Performances in Wheelchair Track Events--apply equally to championship performances in wheelchair field events. Performances are reaching unprecedented distances and accuracies. Specialization in certain field events is becoming more of a necessity for success, especially at national and international levels. Training regimens are becoming more rigorous and vigorous. More athletes are finding weight or resistance training a necessary supplement to practicing skills in specific field events. (1) Many of the same principles and practices from science and sports medicine followed by able-bodied athletes in field events are being adopted and incorporated by athletes taking part in wheelchair field events.

This Practical Pointer, third in the series dealing with training and competing in wheelchair sports, emphasizes general and specific principles and practices for training and competing in wheelchair field events. Hints that can be applied to all field events as well as techniques and approaches for specific field events are presented.

Regardless of situations, athletes are individuals who respond to different techniques and approaches in different ways. Personal experimentation is necessary to determine the most effective ways to use and apply these practical principles. Continued efforts to improve and refine successful approaches and procedures insure growth and progess and often distinguish between the also-ran and the champion. Often the only difference between a CHAMP and a CHUMP is U!!!

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[1]See Practical Pointer, Volume 2, Number 6--Weight Training for Wheelchair Sports--for specific applications of weight or resistance training to championship performances in wheelchair sports.

GENERAL PRINCIPLES

A number of general principles apply to all wheelchair field events. Other specific principles and approaches apply to individual wheelchair field events. Both general and specific principles must be applied to events in which each individual is participating, combination of events in which the competitor takes part, type and level of handicapping condition, strengths and weaknesses of the individual in each event, level of the competitor, type of competition for which the individual is preparing, and stage of the season. The following general principles apply to all wheelchair field events:

- Do not use weighted implements--shot, discus, javelin, club, ball--in training except for specified purposes in drills and training activities. Weighted implements tend to disrupt smooth, efficient, and effective continuity and flow of movements necessary for optimum performances at any stage of development or level of competition. Added training weights to these implements do not add that much to development of muscular strength and endurance. A well conceived and regularly used weight or resistance training program is the most appropriate and effective way to gain additional muscular strength and endurance, vital to optimum performances at any level of competition. For example, using an eight, twelve, or sixteen pound shot for total put or selected parts of it actually develops entirely different skills than when using the official implement. Additional speed generated with a lighter shot, discus, or javelin does not carry over to regulation implements because of their weight differences.

- Know the number of all out efforts required to reach peak performances as well as timing to reach best performances in each wheelchair field event. While organization and administration of wheelchair field events present some unique problems, this information and these principles need to be applied according to each of these particular situations and specific circumstances. Generally few competitors in wheelchair field events warm-up sufficiently and take an adequate number of all out practice efforts prior to moving into the circle for actual competition. As a result many competitors do not approximate their potentials in wheelchair field events because of failure to give attention to these important details.

  An effective approach to determine effort on which best performance occurs includes--

  1. Determining effort on which best performance occurs.

  2. Planning pre-competition warm-up and all out practice efforts so best effort ideally occurs on second trial in qualifying round; this keeps the third trial in case of a foul on the second trail.

  Next organizers and administrators must provide space for competitors in wheelchair field events to have opportunities for adequate and appropriate practice throws. Competitors must find space for this vital part of their pre-competition ritual whether space is provided or not.

To determine when best efforts occur in a single wheelchair field event--

1. Take twenty-four to thirty all out efforts in groups of three with little rest between sets.

2. Initiate this process only after sufficient length of training to be in competitive condition.

3. Measure and record first efforts and then record how much following efforts are above or below the initial effort.

4. Repeat this pattern once a week for several weeks to determine which effort is best.

5. Adopt a slightly different pattern--do two successive days in one week and repeat in the next week--if it is not possible to carry out the procedure for at least three consecutive weeks.

6. Be sure to use pre-meet warm-up before starting all out efforts, regardless of the number of days the procedure is repeated.

7. Keep a log so that appropriate and necessary changes can be made over the course of a season and from season-to-season.

8. Remember, this procedure must be reevaluated and changed as appropriate from year-to-year and season-to-season.

9. Adapt the approach after getting this information for each event individually and independently for second and third events--whether field or track - on the same day in the same meet.

10. Get this information initially for individual events on different days so results are as accurate as possible for each event.

11. Use numerical averages of best of each twenty-four to thirty efforts when they do not coincide exactly. Watch for other trends and signs--i.e., increasing or decreasing numbers of trials to reach best efforts--to assist in getting the most accurate number of all-out pre-competition warm-up efforts to insure peak performances in competition. Be flexible and ready to adjust slightly according to weather conditions, time in the season, frequency of competition, and personal feelings.

To use this information for competition in meets--

1. Warm-up using <u>meet</u>, not practice, procedures and routines.

2. Take designated number of all out efforts, computing so that the best one occurs on the second trial effort. For example, if best effort averages out on the thirteenth effort, take eleven all out puts or throws before moving into the circle for competing in trials.

3. Be sure to know length of time between completing all out pre-competition efforts and your starting time in the trials.

4. Plan this procedure at meets so that timing is as close to this ideal as possible.

- Recognize that practice and pre-competition warm-ups are not one and the same. Warm-up activities in practice are designed to develop specific physical characteristics--i.e., endurance, strength, agility, balance, speed, power--and correct certain deficiencies in these characteristics as well as to prepare the athlete for all out practice efforts. Warm-ups prior to competition are designed to prepare the athlete for maximum efforts in that competition. Since purposes are different so are activities themselves and length each is done.

- Organize individual practice sessions so that sufficient attention and time are given to working on specific elements of form and technique. Approach this in one of several ways--

1. Include several or most elements of form in each practice session.

2. Emphasize one or two elements of form in each practice session being sure that all elements are included over a week of workouts.

3. Stress elements of form in which needs are greatest and problems most accute.

4. Incorporate some practice efforts involving the entire form in most all practice sessions.

5. Insure good and appropriate flow and continuity in form by only moving with completely controlled speed.

6. Increase speed of movements gradually and only by amounts that can be handled by the individual athlete--nothing causes distances to go down as fast and as much as uncontrolled speed!

7. Do not go for or be concerned with distance in practice sessions--save these efforts for intrasquad meets and actual competition.

8. Use appropriately selected and specifically designed drills to improve given aspects of form.

9. Remember, good form results from intelligent and purposeful practice and brings about peak performances in actual competition.

- Use wall pulleys, Exer-Genies, and other conventional devices to develop flow and continuity of good form, and for correcting form flaws and problem areas in total or specific aspects of coordinated movements in wheelchair field events.

- Have someone observe the athlete's form in both practice and competition so little flaws can be brought to his/her attention and corrections made immediately to make more likely peak performances.

- Use films, sequenced still pictures, Polaroid shots, slides and other graphics of the athlete to assist in both practice and competition. Compare pictures of the athlete when performing especially well with those taken when all is not well. Leave no stones unturned in attaining and maintaining peak performances.

- Develop approaches most appropriate for and effective with individual athletes who participate in more than one field event--

  1. Devote one day to one event and the next to the other alternating daily training sessions in this manner.

  2. Include some time in every workout for each event.

  3. Concentrate on better of events, especially if distances in poorer events are not competitive for the coming meet or next level of competition.

  4. Concentrate on the poorer of events, especially if additional work and practice will result in competitive distances for the coming meet, next level of competition, or individuals who participate in the pentathalon.

  5. Use combinations of these approaches based on specific and unique needs of each athlete.

- Avoid working with field event implements the day before actual competition. For some individuals, especially when moving into later stages of the season when the big meets are scheduled, it will be advisable to do nothing two--and in some cases three or even four--days before competition. Each athlete must know him/herself so that peak performances are assured.

- Make necessary and appropriate training adjustments when international competitions occur in fall or winter months rather than as natural continuations of regular season competitions followed by state, regionals, and national meets.

- Experiment with different wheelchair field events to find the best and most appropriate one(s) for each athlete based on his/her abilities, interests, types and degrees of impairments.

- Use year round training judiciously and intelligently. Used properly, year round training can assist in personal development; inappropriately used year round training can sap strength and endurance, disrupt form, reduce interest and enthusiasm, and result in declining rather than increasing performances. While this is not now a problem area for many athletes, as specialization in events increases, greater attention will be necessary to appropriate year round training. In year round training attention must be given to weight training, track work, and facilitating form, as well as sometime off to rejuvinate psychologically, revitalize emotionally, and recharge batteries.

- Include some track work in practice sessions for diversity and to insure balance necessary for championship performances.

- Experiment with form adaptations and modifications to determine what is best for each athlete. Without such foresight and willingness to dare to be different and break with tradition, the world would have never known the Fosbury Flop in the high jump or the O'Brien style in the shot!

- Get as much from your body as humanly possible. Turn the chair away from the direction of the trajectory of the implement as much as possible. Increase release force and velocity by having the implement travel the greatest possible distance before actual release. In general, the more trunk and abdominal use, the further back an individual can turn and face. Many individuals of all competitive classifications are coming no where near their potentials because they are facing too much forward and not enough to the rear. Use new technology in wheelchair construction as an ally to get more from your body than you thought possible. A normal hip roll is not considered illegal as long as only one hip and buttock rolls. Be bold and immaginative in your quest for excellence.

- Train when possible with able-bodied field event competitors. While differences between regular and wheelchair field events are obvious, many similarities exist which can be used and incorporated into training and form in wheelchair field events.

- Train to foul!!! Many competitors in wheelchair field events lose distance and come no where near individual potentials because they are afraid of fouling. Often this situation is created by placing too much emphasis on recovery as part of follow-through. As a result, a full release is cut short. By stressing all out effort--following through totally and not worrying about fouling during this important point in the learning process and crucial phase of form--the athlete gets everything into the effort. After all out effort is developed, introduce ways to control direction of the momentum to prevent fouling. For example, this can be accomplished by grabbing the inside front wheel or side arm of the wheelchair or picking an imaginary object from the circle after the implement is on its way with full power. Each athlete must experiment and find the best way to accomplish this according to individual abilities and conditions. Remember, any part of the body may extend over the stopboard in the air as long as no part of the body or chair touches on the board or in the legal throwing area.

- Keep fun in fundamentals.

PRINCIPLES FOR SPECIFIC WHEELCHAIR FIELD EVENTS

Success in wheelchair field events is attained by attention given to many details necessary for perfecting form that insures maximum performances. Each athlete is then more able and likely to use fully his/her abilities and more nearly reach his/her potential. These important factors also provide bases for planning practice regimens designed to capitalize on strengths and imporve weaknesses. When inches can separate a gold medal and not placing, qualifying and staying at home, realizing personal goals and not, no details can be overlooked when striving for excellence.

Factors to consider for reaching goals in wheelchair field events and for evaluating an athlete's form and practice approaches follow.

Shot

Putting the Shot

- The key to putting the shot effectively rests in the formula Power = Force x Velocity. Therefore...
  - ... develop greatest power with greatest speed, and
  - ... get both push and momentum behind the shot.
- Maintain good body position while generating needed momentum for the shot.
- Make sure the putting movement is one continuous motion--once the shot starts forward it must continually accelerate until leaving the putter's hand.
- Let the head turn with the put. Therefore...
  - ... keep the head horizontal except on the follow-through when it elevates, and
  - ... turn the head back at least 45 degrees throughout the put until it starts to turn forward with the putting motion.
- Remember, the greater the distance through which the shot is accelerated, the greater the speed at which the shot is moving on release. This is an application of Momentum = Mass x Velocity^2. Speed is more important than mass.
- Keep the shot on the neck until it is pushed.

Helpful Hints

- Keep the shot low in the hand early in the season to avoid injury.
- Keep eyes and shoulders in the same parallel plane throughout putting movements.

- Keep the elbow directly behind the putting hand.
- Make sure the shot continues to accelerate once it starts moving.
- Use the left arm to get added power at the end of the put (for right handed putters). For some putters, this added leverage is generated by nolding onto the arm rest or wheel.
- Concentrate on form in practice; distance then comes in meets.
- Be prepared for ups and downs of distance, especially early in the season and by athletes new to the event.

Handhold

- Craddle the shot comfortably on the fingers with the thumb at the side for balance being sure to...
  - ... spread fingers so the shot is on the finger tips;
  - ... keep the three middle or strongest fingers always behind the shot;
  - ... experiment, keeping the little finger behind the shot as a means of generating extra power; and
  - ... spread fingers wider if hands are small.
- Carry the shot above and in front of the shoulder. Let the hand drop back so the wrist is relaxed and cocked--cocking the wrist facilitates the wrist flip at the end of the put.
- Keep the forearm directly under the hand and the shot.
- Keep the tip of the elbow eight to ten inches from the side.
- Be sure the palm of the hand faces direction the shot will travel.
- Allow the hand to drop back to help cocking the wrist.
- Be sure the shot is not in the palm of the hand...
  - ... the shot should be high on the tips of the fingers; and
  - ... beginners will carry the shot a little lower than experienced putters; however, it still should not be in the palm of the hand.
- Pick the shot up and hold it in the left hand before transferring it to the right hand when ready prior to the put (right handed putters).

Preparing for the Put

. Strive for good mechanics that include...

... keeping the body and back as erect as possible;

... holding the chin and chest up;

... keeping the eyes parallel to the ground; and

... maintaining the shoulders level with the right shoulder back as far as possible (right handed putters); then raise left arm and shoulder to keep right shoulder down.

. Attain good positions that include...

... holding the shot as discussed in the previous section;

... keeping the right elbow away from the body with the forearm about 40 to 45 degrees to the body; once thrust starts, the forearm stays directly behind the shot; and

... moving the left arm above shoulder height and bending it at the elbow (right handed putters).

. Stay relaxed and loose.

. Keep the center of gravity as low as possible.

. Keep eyes focused on some point on the horizon.

. Remember, optimum angle for release is 45 degrees.

. Avoid going too fast during the early portion of the put.

. Practice from slow to fast to build rhythm, timing, continuity, and synchronous movement.

Put or Thrust

. Put the shot from the shoulder remembering that...

... the shot cannot be thrown--it is against the rules and also hurts the arm;

... optimum angle for release and thrust is 40 to 45 degrees; and

... the right shoulder should be lower than the left shoulder (right handed putters) at the beginning of the putting movement.

- Emphasize upward drive in putting movements in which...

  ... as much trunk pivot and rotation as possible and legal are generated;

  ... force of the body turns the head--watch out for the head turning too soon;

  ... the chin is lifted with the release; a definite counter pull down is provided with the left arm--by keeping the left elbow bent at approximately 45 degrees, this movement is developed in such a way that power to the shot is facilitated (see below for variations); and

  ... putting action is a lifting action of as much of the body as possible and legal.

- Develop a distinct flip of wrist and fingers at the end of the put--this can add two feet to the put. Remember that...

  ... fingers should be extended with the palm of the hand down;

  ... the arm should be fully extended;

  ... head and chest should be up;

  ... the back is slightly arched;

  ... a conscious and audible exhalation is made as the shot is released;

  ... ideal release angle is 45 degrees; and

  ... after the shot leaves the hand the putter should reach out and keep the eyes on the shot while it is in flight.

- Variations...

  ... use the arm opposite the putting hand for leverage by either holding onto the arm rest or wheel; and

  ... determine degree chair can be turned in circle to get maximum force generated from as much body rotation as possible.

- Remember...

  ... the legs may not be used to push the body out of the chair. Any light shown between the buttocks and seat of the chair during the throw or immediately after the throw disqualifies the throw. A normal hip roll which occurs in this type of movement is not considered illegal as long as only one hip and buttock rolls.

Recovery

- The sole purpose of this action is as a recovery mechanism that...
  - ... does not play a part in the actual put; and
  - ... can be used to prevent fouling.
- Pick up an imaginary object from the circle or grab the inside front wheel or side arm of the wheelchair after the shot is on the way with full power if there is a feeling of fouling.
- No additional momentum can be applied after the shot has left the hand since all the power possible for that put has been generated.

Discus

General Considerations

- For individuals who work in both shot and discus--i.e., neither shot nor discus specialists--discus workouts should follow shot workouts. However, if a...
  - ... discus specialist, this workout should come first;
  - ... shot specialist, this workout should come first.
- A major objective in the discus is to accelerate the implement from its start until it leaves the hand. Remember...
  - ... if individuals slow down or stop, they have wasted all movements and actions preceding that point; and
  - ... often by trying to accelerate too fast in the early part of the throw, athletes are forced to slow down to maintain control.
- The objective of the discus is to integrate linear and circular motions.
- When using a wooden discus, always throw with the same side up so as to have the best possible hand surface.
- Speed of rotation is important; controlled speed of rotation is more important.
- To become proficient in throwing the discus...
  - ... develop an effective handhold;
  - ... learn the release--sailing the discus easily;
  - ... establish an efficient delivery;

... work always slow to fast striving to master form, technique, rhythm, coordination, and continuity;

... work on a specific skill on every practice throw; and

... work on only one skill at a time.

- Make sure the first throw in competition is fair as good as far as distance is concerned.

- Change position in the circle to take full advantage of wind.

- Never try to throw the discus a mile or out of the stadium--this destroys rhythm, timing, continuity, and results in poor throws; concentrate on form and good throws result.

Handhold

- Size of the hand and length of fingers affect grip on the discus. Regardless of these factors, certain fundmentals are important and must be followed.

- Fundamentals of the handhold emphasize...

... keeping the palm of the hand down;

... holding the discus flat against the palm of the hand;

... keeping the first joint of each finger over the edge of the discus to hold it firmly.

... Spreading the fingers slightly and spacing them evenly on the discus--in some variations (see below) this is changed to accommodate hand size;

... pressing the thumb flat against the discus;

... extending the thumb in line with the forearm but not over the edge of the discus;

... having the thumb make an angle of about 45 degrees with the forefinger; and

... keeping the hand directly over the center of the weight of the discus or slightly behind the center.

- Variations of the fundamental handhold include...

... spreading the fingers more;

... applying pressure differently; and/or

... humping the wrists for athletes with small hands who arch or cup their hands and wrists so lobes at bases of the fingers do not touch the discus; back of the discus rests lightly on wrist and lobe of the thumb; thumb rests on the face of the discus close to the index finger; no other parts touch the discus; the hand is turned slightly to the right (right handed thrower) so more snap can be developed.

- Place the top edge of the discus against the inner side of the wrist.
- Cover as much of the discus as possible with the hand.
- Cock the wrist to the right (right handed thrower) for greater snap on release.
- Press the edge of the discus lightly but firmly against edges of the fingers--do not grip the discus with the fingers.
- Develop centrifugal force to keep the discus in proper place--correct handhold insures this.
- Get so that the discus can be planed...

  ... the discus has a clockwise turn or spin (right handed throwers); and

  ... the discus should go off the (1) forefinger alone, (2) forefinger and middle finger together, or (3) forefinger and middle finger which are held together for greater power.

- Be sure to...

  ... use towels to keep discus dry and clean;

  ... use firm grip on hands to keep discus from slipping, and

  ... tape wrist for protection and to aid proper wrist action.

Preparing for the Throw

- The athlete must be in a semi-relaxed position.
- Preliminary swings of the discus are for control, relaxation, rhythm, and balance.
- At the end of the last preliminary swing (right handed throwers)...

  ... eyes and head are turned to the right to give a longer arc for the backswing of the discus;

  ... right hip is back and cocked as much as possible and legal;

... eyes are focused at or slightly above the horizon;

... eyes are important since they pilot movement of the body;

... left arm is extended or partially flexed;

... left arm is a counter weight for balance;

... rotation of preliminary swings is backward and sideward to the right and then forward and sideward to the left; and

... the discus from this point on trails through the entire throw.

- Variations for Classes 1A, 1B, 1C, II may include holding on to the wheel or the side arm with the opposite arm to aid in adjusting balance. Thrust motion is the same, perhaps dropping the arc slightly before release; follow through is with the arm and shoulder rather than with the body.

Delivery

- The body turns the arm--to the maximum degree possible--and brings the discus through with it; for this reason the discus continues to trail throughout the throw.

- An improper delivery position costs many feet.

- Beginning the delivery...

  ... pull on the discus; start from a position when the discus is well to the rear of the body; pull is coordinated with the swift twist of the trunk to the left (right handed thrower); the discus starts through from as close to hip level as possible;

  ... head is tilted back;

  ... eyes are lifted and focused on a point above the horizon; and

  ... trunk straightens out to maximum extent possible and legal.

- Flow of the throw (right handed thrower)...

  ... right hip to left hip to degree possible and legal,

  ... right shoulder to right arm;

  ... right arm to right wrist;

  ... right wrist to right hand;

  ... right hand to fingers; and

  ... pull back with left side.

. Important pointers of the delivery...

... hips rotate forward to degree possible and legal;

... chest is up;

... discus trails behind until it actually starts to come through;

... momentum turns the body to degree possible and legal which in turn moves the discus;

... throw through the shoulder; and

... use left arm to give added force to the throw by pulling vigorously down.

Release

. A good release adds at least ten feet to total distance...

... the discus should sail without a wobble;

... a wobbling discus increases air resistance and reduces distance; and

... release should be at an angle between 28 and 45 degrees according to weather conditions--reduce angle of release into a head wind and increase angle of release with a trailing wind.

. In an effective release...

... the discus should leave the hand about shoulder level -- the throw comes through the shoulder;

... the discus comes off the fingers in such a way that it spins clockwise (right handed thrower);

... the conventional release is off the forefinger;

... variations in release include off the forefinger and/or middle finger;

... final contact with the discus is at a point slightly ahead of an imaginary line drawn through both shoulders;

... the chest must be upward and forward;

... the head is tilted slightly back with eyes focused on the flight of the discus;

... the left arm swings vigorously back and down to add power to the throw;

... at the time of the release the shoulders are turned to the front and are about parallel to the ground;

... hips are square, with the right hip rotated to the front to degree possible and legal;

... a definite and conscious snap of the wrist at the end of the throw gives extra power;

... the discus actually comes off the front of the hand;

... actual release is at shoulder height; and

... wrist is in a straight line with the discus as the implement comes off the fingers.

Recovery

- This is not an actual part of the throw--it helps the thrower not to foul and to regain balance.
- Keep the head back with eyes focused toward the direction of the flight of the discus.
- Use arms in the most natural and best ways for effective recovery action--this is a highly individualized procedure.
- To prevent fouling...
  - ... turn back into the circle to degree possible and legal;
  - ... look at feet or rear wheels on wheelchair; and/or
  - ... pick up an imaginary object from the circle or grab the inside front wheel or side arm of the wheelchair after the discus is on its way with full power.
- Follow through may bring the body well over the arm of the chair with a roll-over motion of the buttocks. No light should be visible between the seat of the chair and buttocks of the individual; a normal hip roll is legal.
- Legs may come off the footplates after the throw. Falling out of the chair after the throw and touching the ground in the circle is permitted; out of the circle is a foul throw.

Safety Precautions

- **Have separate facilities for discus throwers to practice if at all possible.**

- Have spectators and individuals returning the discus stand at least thirty feet beyond the point to which the discus can slide or bounce after hitting.
- Make certain no one is within range before throwing.
- Make sure that in meets the area is clearly marked and roped off to prevent spectators and other competitors from moving through the area.

Javelin

Grip

- Grip at the rear end of the cord binding to allow force to be transmitted to the javelin behind its center of gravity, and so the fingers find good resistance on the javelin shaft.
- Keep the thumb and last two joints of the index finger behind the cord binding so the javelin is positioned along the inner edge of the palm of the hand; this affords a good power throw.
- Be sure the thumb and last two joints of the middle finger are behind the cord binding while the index finger supports the shaft from below. The other fingers may curl over the cord binding or dig into the side of the cord binding.
- Remember, a somewhat longer and stronger lever is offered by the middle finger--this is beneficial to the spin of the javelin about a long axis which is so important to flight stability; the index finger on the javelin shaft has better possibility of controlling the throw.

Preparing for the Throw

- Place the javelin at the height of the forehead, above the shoulder, and parallel to the ground.
- Extend the throwing arm back as far as comfortably possible without strain and in alignment with the shoulder axis.
- Turn the palm of the hand upwards and extend the forearm.
- Attain as much backward lean as possible since this is so important for sustained application of force during the release.
- Remember...
  - ... the wheelchair may face the stop board or be turned sidewards.
  - ... Classes 1A, 1B, 1C, and 1l usually face the stop board with the opposite hand holding onto the side arm or the wheel.

... Classes III and IV may place the large wheels against the stop board and sit towards the front of the chair to gain more leverage for throws. This position, however, may cause the buttocks to come off the seat.

... Class V may place the chair in any position that is good for the individual. The side position generally is better for maximum follow through after the throw.

Throwing Motion

- Master overhand throwing motion which is basic to good javelin technique. Length of the javelin complicates developing an effective overhand throwing motion.
- Develop explosive force of arms and shoulders that is so important in basic overhand throwing motion for the javelin.
- Use balls, broom sticks and wooden dowels of different lengths and short javelins to develop and apply basic overhand throwing motion to throwing the javelin.
- Master basics of overhand throwing with the javelin itself, always using just the right amount of speed--a key to success is controlled speed.
- Throw so the javelin first touches the ground with the tip of the metal head as prescribed by rules. The final wrist snap is important to get the javelin to land point down.
- Flow of the throw...
  - ... bring the arm forward;
  - ... bend the arm at the elbow;
  - ... draw the hand near the head as the thrust forward is made; and
  - ... snap the wrist down as the release is made with a follow through.

Release

- Keep shoulder and hip axis parallel and abreast at right angles to the direction of the throw.
- Remember, the throwing arm is still well bent and does not extend again until the appropriate time in the throwing motion.
- When the throwing arm begins to move forward, the elbow is raised until it is level with the head and pointed in the direction of the throw; lower and upper arms form a right angle.

- Keep the left side of the body (right handed thrower) fixed to the maximum degree possible.

- Strive for an angle of release between 32 and 36 degrees. Keep the angle of incidence of the javelin--the javelin forms one arm and the ground the other arm of the angle--as near the angle of release as possible. The ideal is when angles of release and incidence are identical. The higher the angle of incidence, the greater the surface of the javelin exposed to the flow of arc and the greater the effect of the wind on flight and trajectory of the javelin.

- Complete the release with a snap down of the wrist to insure effective follow-through.

Precision Javelin

Basic Fundamentals

- Use same basic grip as in regular javelin.

- Have chair face the throwing line, although it may be turned sideways.

- Use high arching throw which is usually better for accuracy needed in hitting the ground target. Some individuals, however, may want to try the direct straight-line throw.

- Use hand and arm not holding the javelin to sight the target by holding the arm straight out towards the target and sighting over the hand.

PENTATHLON

The wheelchair pentathlon, a test of versability, strength, endurance, speed, agility, power, coordination, and overall athletic ability, is separate from competition in individual events. The wheelchair pentathlon consists of--

- Archery--48 arrows at 50 yards; Classes 1B, 1C, and II, 25 yards.

- Swimming - Classes 1B, 1C, and II--25 yards; Classes III and IV-- 50 yards; Classes V and VI--100 yards.

- Javelin--Class 1B uses a club rather than a javelin.

- Shot--Class 1B--2 kilogram shot; Class 1C and all females--3 kilogram shot; Classes II, III, IV, and V--4 kilogram shot.

- Dash--Class 1B--60 yards; all other classes--100 yards.

Since athletes prepare to compete in five events, there is little chance for specialization in any one event. Practice daily, using drills, warm-ups, fundamentals, and activities appropriate for individual events. Practice patterns vary according to available facilities, time in the season, strengths and weaknesses of individual athletes, experience of athletes in various events, strengths and weaknesses of opponents. Some guidelines to consider in planning practice sessions include--

- Work on one field event and the sprint event in an individual practice session: emphasize aspects of each event in which the athlete is weak--form, endurance, speed, start, finish, approach. Practice swimming on a day reserved for this event. Integrate archery into workouts so that it receives adequate attention and fits most appropriately into the overall practice pattern.

- Pick one day, preferably Friday or Saturday, for time trials, intrasquad competition, or practice meets in all five events. This helps develop the kind of endurance and timing needed to compete in the pentathlon.

- Emphasize weak events by having athletes perform all five events as in competition and then spend the rest of the day's practice time equally on the one or two weakest events.

- Spend additional time on weak events by allocating more practice sessions per week for these events.

- Develop a coordinated practice plan for the season as well as month-to-month, and week-to-week. Keep this plan flexible so that it can be adjusted as conditions change during the season and individual athletes require different practice emphases.

- Emphasize events in which the individual has least experience when he/she competes regularly in specific events in individual competition and needs additional time in the relatively new events.

With the wheelchair pentathlon scoring system decisions have to be made as to whether or not to concentrate on an individual's weakest events, emphasize fair events, and maintain performance levels in strong events. The reason to consider this approach is simple--the more an individual improves weak events, the better chances of improving relative position in competition. It is usually easier to improve and gain points in weak than in strong events.

Another consideration is the individual's potential for improvement in each event. For example, an athlete who has sprinted a great deal but put the shot or thrown the javelin little usually improves more in field events that in the sprint. Similarly, characteristics of archery and swimming events are such that more rapid and greater improvement can be realized by individuals who are attracted to the pentathlon through track and field activities. Further, events like sprints and the shot are subject to performance plateaus or leveling off. Planning pentathlon practice sessions is a complicated and complex procedure in which each competitor's performance patterns, experience, and abilities must be considered.

The pentathlon is a demanding event--five activities in one day. It is not easy to get competitors in condition for competition while making training and practice fun, interesting, exciting, and challenging. Use games, relays, activities, drills appropriate for individual events and motivational devices used with other athletes in other events and activities to stimulate individual athletes to peak performances.

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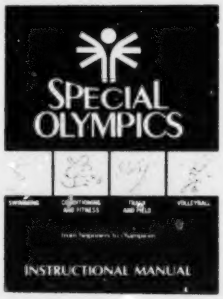

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